AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended) A heat transfer apparatus for use in measuring a rheological property of a test sample, the heat transfer apparatus comprising:

a receptacle for receiving the test sample; and

a heat conveying member disposed in heat transfer relation to the receptacle, the receptacle located within an interior defined by the heat conveying member such that the receptacle is substantially surrounded by the heat conveying member, the heat conveying member including

at least ~~two~~ first and second internal passages spaced apart from one another through at least a portion of the heat conveying member, each of the first and second internal passages having first and second ends,

an inlet,

an outlet,

a passage splitter connected to the inlet and the first ends of the ~~two~~ first and second internal passages for dividing a flow of a fluid from ~~through~~ the inlet ~~into~~ between the first and second internal ~~two~~ passages, and

a passage union connected to the outlet and the second ends of the ~~two~~ first and second internal passages,

each of the first and second internal passages defining a substantially complete loop around the interior of the conveying member and the receptacle therein,

the passage splitter and the first and second internal passages ~~formed so as to provide~~ arranged for ~~counter-flowing~~ counter-flow circulation ~~of a fluid through the heat transfer member~~ in which a flow of fluid is respectively directed in the first and second internal passages through the heat conveying member in clockwise and counterclockwise directions.

Claim 2 (canceled).

Claim 3 (currently amended) The heat transfer apparatus according to claim 1 wherein the heat conveying member is formed from a plurality of heat sinks interconnected to one another ~~so as to surround at least a portion of the receptacle~~ , the inlet and outlet of the heat conveying member being located adjacent each other on one of the plurality of heat sinks.

Claim 4 (currently amended) ~~The~~ A heat transfer apparatus ~~according to claim 3 wherein~~ for use in measuring a rheological property of a test sample, the heat transfer apparatus comprising:

a receptacle for receiving the test sample;

a heat conveying member disposed in heat transfer relation to the receptacle, the heat conveying formed from a plurality of heat sinks interconnected to one another so as to surround at least a portion of the receptacle, the heat conveying member including

at least first and second internal passages spaced apart from one another through at least a portion of the heat conveying member, each of the first and second internal passages having first and second ends,

an inlet,

an outlet,

a passage splitter connected to the inlet and the first ends of the first and second internal passages for dividing flow through the inlet into the first and second internal passages, and

a passage union connected to the outlet and the second ends of the first and second internal passages, the passages formed so as to provide for counter-flow circulation of a fluid through the heat conveying member,

the ~~two~~ first and second internal passages ~~extend~~ extending through at least a portion of each of the plurality of heat sinks~~,~~ ; and

~~wherein the heat transfer apparatus further comprises~~ a plurality of connectors each extending between adjoining heat sinks and ~~having a first end~~ connecting one of the ~~two~~ first and

second internal passages of one of the adjoining heat sinks with a corresponding one of the ~~two~~ first and second internal passages in the other of the adjoining heat sinks for permitting fluid to pass through the internal passages from one heat sink to the other.

Claim 5 (currently amended) The heat transfer apparatus according to claim 3 wherein the plurality of heat sinks interconnect so as to define a substantially square housing for the receptacle ~~and wherein the two internal passages extend through at least a portion of the heat sinks~~.

Claim 6 (currently amended) The heat transfer apparatus according to claim 1 wherein the heat transfer apparatus further comprises at least one heat exchanging element disposed in heat transfer relation to the receptacle to transfer heat to and from the receptacle, the heat exchanging element ~~conveying member~~ being in heat transfer relation to the heat conveying member ~~exchanging element~~ for transferring heat to or from the heat conveying member ~~exchanging element~~.

Claim 7 (currently amended) The heat transfer apparatus according to claim 6 wherein the heat exchanging element comprises a thermoelectric module, the module adapted to receive electric current ~~for controlling~~ to transfer ~~of~~ heat through the module from a first side of the module to an opposite second side of the module.

Claim 8 (original) The heat transfer apparatus according to claim 7 wherein the thermoelectric module comprises a multi-stage thermoelectric module.

Claim 9 (currently amended) A cold cranking simulator comprising:

a receptacle for receiving a sample;

at least one heat exchanging element disposed in heat transfer relation to the receptacle, the heat exchanging element ~~adapted to receive~~ responsive to electric current ~~for transferring~~ to transfer heat to or from the receptacle ~~by means of the heat exchanging element~~; and

a heat conveying member in heat transfer relation to the heat exchanging element for transferring heat to or from the heat exchanging element, the receptacle and the at least one heat exchanging element located within an interior defined by the heat conveying member such that the receptacle and the at least one heat exchanging element are substantially surrounded by the heat conveying member, the heat conveying member having ~~at least two~~ first and second internal passages spaced apart from one another through at least a portion of the heat conveying member, the first and second internal passages having first and second ends,

an inlet,

an outlet,

a passage splitter connected to the inlet and the first ends of the ~~two~~ first and second internal passages for dividing a flow ~~through~~ of a fluid from the inlet ~~into~~ between the ~~two~~ first and second internal passages, and

a passage union connected to the outlet and the second ends of the ~~two~~ first and second internal passages~~.~~

each of the first and second internal passages extending in a substantially complete loop around the interior of the heat conveying member and the receptacle therein, the passage splitter and the first and second internal passages ~~formed so as to provide~~ arranged for ~~counter-flowing~~ counter-flow circulation ~~of~~ in which a fluid is respectively directed in the first and second internal passages through the heat conveying member in clockwise and counterclockwise directions.

Claim 10 (canceled).

Claim 11 (currently amended) The cold cranking simulator according to claim 9 wherein the heat conveying member is formed from a plurality of heat sinks interconnected to one another ~~so as to surround at least a portion of the receptacle~~ , the inlet and outlet of the heat conveying member being located adjacent each other on one of the plurality of heat sinks.

Claim 12 (currently amended) ~~The~~ A cold cranking simulator ~~according to claim 11~~ comprising:

a receptacle for receiving a sample;

at least one heat exchanging element disposed in heat transfer relation to the receptacle, the heat exchanging element adapted to receive electric current for transferring heat to or from the receptacle by means of the heat exchanging element;

a heat conveying member in heat transfer relation to the heat exchanging element for transferring heat to or from the heat exchanging element, the heat conveying member having first and second internal passages spaced apart from one another through at least a portion of the heat conveying member, the first and second internal passages having first and second ends,

an inlet,

an outlet,

a passage splitter connected to the inlet and the first ends of the first and second internal passages for dividing flow through the inlet into the two first and second internal passages, and

a passage union connected to the outlet and the second ends of the two first and second internal passages.

the passages formed so as to provide for counter-flow circulation of a fluid, ~~wherein~~ the ~~two~~ first and second internal passages ~~extend~~ extending through at least a portion of each of the plurality of heat sinks~~,~~; and

~~wherein the heat transfer apparatus further comprises~~ a plurality of connectors each extending between adjoining heat sinks and ~~having a first end~~ connecting one of the ~~two~~ first and second internal passages of one of the adjoining heat sinks with a corresponding one of the ~~two~~ first and second internal passages in the other of the adjoining heat sinks for permitting fluid to pass through the first and second internal passages from one heat sink to the other.

Claim 13 (canceled).

Claim 14 (previously presented) The cold cranking simulator according to claim 9 further comprising a temperature control system having a temperature probe for generating a signal representing a temperature monitored by the probe, the control system ~~being~~ in electrical communication with the heat exchanging element and ~~adapted to receive~~ responsive to the signal for controlling the current ~~for~~ supplied to the heat exchanging element ~~in response to the signal generated by the probe~~.

Claim 15 (withdrawn) A method of controlling the temperature of a rheological test sample, the method comprising the steps of:

providing a rheological test cell having a receptacle for receiving the rheological test sample and a heat exchanging element responsive to electric current in heat transfer proximity to the receptacle for transfer of heat to or from the receptacle, the test cell further having a heat conveying member in heat transfer relation to the heat exchanging element for transferring heat to and from the heat exchanging element, the heat conveying member defining at least two internal passages extending substantially equidistant from one another through at least a portion of the heat conveying member;

positioning a temperature sensor in monitoring proximity to the receptacle;

introducing the rheological test sample into the receptacle;

measuring the temperature of the receptacle with the sensor;

controlling the electric current supplied to the heat exchanging element in response to the measured temperature of the receptacle to vary the transfer of heat to or from the receptacle for maintaining the receptacle substantially at a desired temperature:

circulating a fluid from a fluid source in the internal passages for transferring heat to or from the heat conveying member by channeling a portion of fluid in a first one of the passages in a direction which is opposite from that of a portion of fluid in a second one of the passages to limit temperature gradients across the receptacle.

Claim 16 (withdrawn) The method according to claim 15 wherein the heat conveying member comprises an inlet and an outlet and a passage splitter adjacent the inlet for dividing a

single passage into separate passages, the heat conveying member further comprising a passage union adjacent the outlet for linking separate passages into a single passage.

Claim 17 (withdrawn) The method according to claim 15 wherein the heat exchanging element comprises a thermoelectric module, the module responsive to electric current to establish transfer of heat through the module from a first side of the module to an opposite second side of the module and wherein the step of controlling the electric current includes the step of reversing the direction of the electric current to establish transfer of heat through the module from the second side of the module to the first side.

Claim 18 (withdrawn) The method according to claim 17 wherein the thermoelectric module comprises a multi-stage thermoelectric module.

Claim 19 (currently amended) A heat transfer apparatus for use in controlling the temperature of a sample container, the heat transfer apparatus comprising a heat transfer housing having a wall and a bottom, the wall having an inside surface defining a cavity within the housing, the wall including at least one electrical heat transfer device for controlling heat transfer from the inside surface of the wall, the wall having an inlet port, an outlet port and an internal cooling circuit that extends from the inlet port to the outlet port, the cooling circuit including first and second channels connected to the inlet port and the outlet port, ~~the first channel extending from the inlet port in a first direction through the wall and the second channel extending to the outlet port through the wall in a substantially opposite direction from the first channel such that in operation~~ each of the first and second channels defining a substantially complete loop about the cavity of the housing, the first and second channels arranged for counter-flowing circulation in which the flow though the housing in the first and second channels ~~are~~ is in opposite directions.

Claim 20 (currently amended) A heat transfer apparatus according to claim 19 wherein the wall is made up of multiple sections, each wall section adapted to removably engage with two

adjacent wall sections the inlet port and the outlet port located adjacent each other on one of the multiple wall sections.

Claim 21 (currently amended) A heat transfer apparatus according to claim ~~19~~ 20 wherein the inlet and outlet ports are formed in one of the multiple wall sections and wherein the first and second channels extend through each of the other ones of the multiple ~~three~~ wall sections.

Claim 22 (currently amended) A heat transfer apparatus for use in controlling the temperature of a sample container, the heat transfer apparatus comprising

a heat transfer housing having four wall sections and a bottom, the wall sections having an inside surface defining a cavity within the housing and an outside surface;

at least two thermal electrical units mounted in two of the wall sections in heat transfer relationship with the inside surface, each of the thermal electrical units responsive to electric current for controlling heat transfer from the inside surface of the wall;

an inlet port formed extending from the outside surface of one wall section into the wall;

an outlet port formed extending from the outside surface of one wall section into the wall;

an internal cooling circuit extending between the inlet port and the outlet port, the cooling circuit including first and second channels, the first and second channels each having a first end connected to the inlet port, and a second end connected to the outlet port, the first channel extending through the wall sections from the inlet port to the outlet port in a first direction, the second channel extending through the wall sections from the inlet port to the outlet port in a substantially opposite direction from the first channel such that in operation flow though the first and second channels are in opposite directions.

Claim 23 (currently amended) A heat transfer apparatus according to claim 22 wherein the first ends of the first and second channels are connected to the inlet port through a splitter, and wherein the splitter is formed in the same wall section as the inlet port; and wherein the second ends of the first and second channels are connected to the outlet port through a splitter, and wherein the splitter is formed in the same wall section as the outlet port.

Claim 24 (previously presented) A heat transfer apparatus according to claim 22 wherein the inlet port and the outlet port are formed in the same wall section.